genesis. "The law of the formation of new types is a fragmentation of the tissue of more primitive organisms, and the arrangement of these new formations in new groups." "Neither selection nor adaptation can explain the specific peculiarities (particularités) of the structure of organisms, which are due to new spontaneous productions."

Thus the reader is insidiously led from harmless admissions as to the structure of protoplasm to grave heresies in regard to the efficacy of natural selection; but if he is convinced, we confess our inability to understand how the trick is done. We think that the sound part of the book may be summed up in a sentence of E.B. Wilson's: "Broadly viewed, therefore, the life of the multicellular organism is to be conceived as a whole; and the apparent composite character, which it may exhibit, is owing to a secondary distribution of its energies among local centres of action." J. A. T.

OUR BOOK SHELF.

Notions de Minéralogie. Par A. F. Renard et F. Stöber. Ier. fascicule. Pp. iv + 189; 398 figures. (Ghent: Ad. Hoste, 1900.)

A TEXT-BOOK of mineralogy, written by the Abbé Renard, with the co-operation of his assistant, F. Stöber, who has published important mineralogical papers, excites high expectations; and, in spite of its modest title, this work is really a text-book. The present volume contains only the introductory portion, dealing with the geometrical, physical and chemical properties of minerals. A second part is promised, which will contain the description of various species and a notice of those found in Belgium.

The excellent historical survey with which the book opens is modelled upon Fletcher's well-known "Introduction to the Study of Minerals"; it is only brought down to the year 1833. In the following section (geometrical crystallography) some of the principal types of crystals, and their planes of symmetry, are indicated by projections of the "elementary spaces" (the systematic triangles of Maskelyne) similar to those used by Liebisch in his "Grundriss der Krystallographie"; axes of symmetry are not employed, but the familiar conception of hemihedrism is retained; and the facts are stated in a manner which involves no special mathematical knowledge. Indices are used throughout. The subject of twinning is briefly treated, and only by reference to twin planes. In the optical section use is made of the wave-surface and the ellipsoid of optical elasticity.

Since out of 189 pages eighty-eight are devoted to the geometry, and fifty-seven to the physics, of crystals, the chemical section is very brief, but considerable attention is, as might be expected, devoted to microchemical analysis, and also to crystal etching.

The reader will not expect to find much that is novel; neither will this book give him an insight into modern theoretical aspects of the subject; but he will find, what is more important, a very lucid statement of the essential facts, and a clear description of the practical methods in use by mineralogists; to illustrate this, special attention may be called to the paragraph on the angle of minimum deviation on p. 116, and to the interpretation of interference figures by the diagrams on pp. 138-9

It must not be imagined from what has been said that the book ignores new advances in the science; there is, for example, a paragraph on the use of X-rays.

The figures are adequate, but not very well printed.

When the second part appears, we shall expect to find that it completes a very readable and useful student's handbook. H. A. M.

Muret-Sander's Encyclopaedic English-German and German-English Dictionary. Pp. xlviii + 1733. (London: H. Grevel and Co., 1900.)

BEFORE buying a dictionary of words of a foreign language the purchaser has to make up his or her mind as to what *kind* of a dictionary is required. There are, for instance, dictionaries which can easily be placed in the waistcoat pocket: these necessarily contain a very restricted number of words. From this they gradually increase in size, weight, and quantity of information given, until they assume such proportions that they are best kept in one place and referred to there, as their bulk renders them somewhat inconvenient to move.

The volume before us, which is described as an abridged edition, may be said to be verging on the larger size of dictionaries, as its dimensions are 11 × 8 × 3 inches, and it contains nearly 1800 pages.

The plan and arrangement of the work are uniform with the well-known French-German dictionary of Sachs-Villatte, and the pronunciation adopted is based on the phonetic system employed in the method of Toussaint-Langenscheidt.

The volume should find special favour with students of science, for, although it is in no sense technical, there is a sufficient sprinkling of scientific terms throughout its pages which should render it most useful to this large class of readers. To find out the extent of the insertion of technical terms, we have chosen at random some chemical terms such as ozone, hydroxide, vanadium, fractionation, nitrate, and find that all except one are included. Repeating the same for physical terms, we find ampere, watt, electrolysis (absent, but electrolyse inserted), galvanism, achromatic, all but one mentioned.

Some readers may dislike the use of the German type when German words are printed, since most of the German scientific publications are now printed in Roman type; any one, on the other hand, familiar with the German language, will probably prefer the usual German letters. In addition to being clearly printed, the volume is strongly bound, and is issued at the moderate price of fourteen shillings.

Die Elemente der Entwickelungslehre des Menschen und der Wirbelthiere. By O. Hertwig. Pp. vi + 406; 332 figures. (Jena: Gustav Fischer, 1900.)

THIS work is a condensation of the sixth edition of Hertwig's well-known "Lehrbuch," brought out in a form more suited to the needs of beginners and students, especially of medicine. It is intended "to serve as an introduction to the field of embryological science, and to put forward only its leading facts in a shorter form." Hence the discussion of controversial problems is omitted, as well as historical reviews or references to literature, for which the more advanced student must consult the larger work. Each chapter concludes with a "repetitorium," by which is meant a numbered series of categorical statements, summing up briefly the results obtained in the foregoing chapter. There are numerous illustrations, the pick of those in the "Lehrbuch." The book is doubtless one which will be very useful to the German student, but unless it is translated, it may be doubted if it will have a very large sale in this country, since the English student of the class for which it is intended is not able, as a rule, to read easily books in a foreign tongue, while those who take their science enough in earnest to acquire this faculty, will probably purchase the larger work. For the teacher, however, the book offers a brief and convenient summary, very handy for reference. E. A. M.

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